

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2003P02166WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/002670	International filing date (day/month/year) 15.03.2004	Priority date (day/month/year) 29.04.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant SIEMENS AKTIENGESELLSCHAFT		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.																								
2.	This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.																								
3.	This report is also accompanied by ANNEXES, comprising: <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>8</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																								
4.	This report contains indications relating to the following items: <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002670

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-19 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-23 _____ received by this Authority on 11.11.2004 with letter
- nos.* _____ received by this Authority on of 10.11.2004
- ☒ the drawings:
- sheets 1-3 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/002670

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	11-13, 21-23	YES
	Claims	1-10, 14-20	NO
Inventive step (IS)	Claims		YES
	Claims	1-23	NO
Industrial applicability (IA)	Claims	1-23	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1. Prior art

1.1 This report makes reference to the following documents:

D1: US-A-2 633 698 (FREDERICK NETTEL), 7 April 1953
(1953-04-07)

D2: US-A-4 078 387 (DE BOISJEAN MICHEL DE LAMBERT ET
AL), 14 March 1978 (1978-03-14)

2. Independent claims 1 and 14

2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 1 is not novel (PCT Article 33(2)).

Document D1 is considered to constitute the prior art closest to the subject matter of claim 1 and discloses (the references in parentheses are to that document):

a system for influencing intake gas temperature

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

and hence the energy level in the combustion chamber of an internal combustion engine (10), in particular a homogeneous charge compression ignition internal combustion engine, in which

- a compressor assembly (see figure 6, turbocharger 15 with turbine 14 and compressor 13) is provided for compressing fresh intake air having a temperature T1 before compression (such as -50°C; see figure 1, left line pointing upwards from 1 bar to 3 bar pressure), and
- expansion means (see figure 6, heat exchanger 40') can cause the compressed fresh air to expand (see figure 1, uppermost line pointing laterally from 3 bar back to 1.7 bar pressure),
- the compressed and then expanded fresh air has a temperature T2 (here 0°C) higher than T1 (-50°C, see above),

the system being characterised in that a temperature sensor (vapour-pressure-type thermostat 52) is arranged downstream of the expansion means, in the direction of flow of the fresh gas, so that the sensed temperature can be taken into account when adjusting the intake gas temperature (see description, column 8, lines 23-29).

2.2 D1 likewise describes the subject matter of the independent process claim 14.

2.3 D2 also appears to disclose the features of claims 1 and 14.

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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3. Dependent claims

- 3.1 Dependent claims 2-10 and 15-20 do not appear to be novel, since all their features have already been disclosed in D1 and D2.
- 3.2 Dependent claims 11 and 21 do not appear to be inventive (PCT Article 33(3)) because they relate to a typical system configuration and process steps, respectively, and therefore represent only one of several obvious possibilities from which a person skilled in the art would choose, without being inventive.
- 3.3 Dependent claims 13 and 23 do not appear to be inventive (PCT Article 33(3)) because the formula disclosed is a generally known thermodynamic relationship.

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

4. Clarity of the independent claims

4.1 The expression used in claims 1 and 14, "in particular a homogeneous charge compression ignition internal combustion engine" is optional and does not restrict the scope of protection of the claims. It is therefore misleading with regard to the claimed scope of protection. The subject matter of these claims is thus not clearly defined (PCT Article 6).

5. Inadmissible extension of dependent claims 12 and 22

5.1 The amendments to claims 12 and 22 submitted with the letter of 10 November 2004 introduce substantive matter which goes beyond the original disclosure in the international application as filed, thereby contravening PCT Article 34(2)(b). This concerns the equation for calculating the intake gas temperature, which was not disclosed in this form in the description or in the claims of the international application or of the priority document.